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Improving the quality of students' arguments through 'assessment for learning'

Abstract

Specifications in England and Wales frequently cite improvement in the quality of students' arguments as a key objective of courses of study for public examinations. More generally, this objective might be seen as a central element in the process of citizenship education. However, there is evidence that progress in the quality of students' arguments is disappointing relative to other dimensions of their achievement. Research evidence on the differences between informal and formal arguments provides a basis for identifying weaknesses in students' arguments that might be addressed in teaching. This evidence also suggests ways in which these weaknesses might be addressed. However, this literature provides a generic account of the development of argument, rarely paying attention to differences between different subjects. Drawing on this literature this paper describes an approach to supporting the development of students' arguments within two curriculum subject areas: geography and business studies. Similarities and differences between the subjects are identified and the way in which these characteristics of arguments have been used with students to develop their arguments is exemplified.

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Assessment, learning study, geography, business studies, Toulmin

1. Introduction

The development of reasoned argument is crucial to the process of education because it is central to learning itself and pivotal to the contribution of education to society. The ability to construct and evaluate arguments is integral to the search for meaning and 'deep learning'. It is also central to the development of adults as social beings (Andrews 1997, 267). As Stein and Miller (1991, 267) phrase it, 'argument is a primary mechanism in the resolution of social conflict and in the construction of socially appropriate norms'. It is appropriate, then, that the aims of examination courses and the performance criteria used to allocate grades to students should refer in some detail to the qualities of students' arguments. This is exactly what we find. However, these aspirations are insufficient to guide teachers in supporting students' learning. In Business Studies at least, the quality of students' arguments is a weak point within their overall performance (Forrester 2004).

One inference is that schooling is not making much impact on the 'informal' style of argument that students have developed through their experience outside school. Insights from experimental research in psychology suggest that informal arguments suffer from two key weaknesses: 'confirmatory bias' and 'weak situational modelling'. It has been suggested (Baron 1988) that these problems might be ameliorated through teachers modelling higher qualities of argument to which students should aspire. However, there is no point in a teacher modelling a quality of argument that is so far beyond a learner's current capability that they cannot appreciate its characteristics. If there are staging posts in the development of higher qualities of argument these can be used by teachers and students to direct learning. The idea from phenomenography (Saljo, 1988, Marton and Booth 1997) that understanding of any phenomenon (such as 'an argument') may take one of a limited number of categorically different forms suggests that it is reasonable to think in these terms. Even if learning is thought to be more slippery and gradual than implied by phenomenography the idea of using imposed staging posts to evaluate and debate progress may prove fruitful for teachers and learners who engage in 'assessment for learning' (Black and Wiliam 1998, 2009; McDonald and Boud 2003).

This paper presents some criteria that have been developed for this purpose by teachers in Business, Studies and Geography. These criteria are particularly important to the contribution of these subjects to the aim of developing citizens who are able to play a critical and constructive role in the development of their societies. The use of these criteria in assessment for learning is also described and a general model for this process is processed. The relevance of the insights from the psychological literature is demonstrated by

reference to examples of students' oral contributions in class and also by reference to their writing.

Section 2 of the paper identifies how qualities of argument are referred to in examination specifications in England. Section 3 reviews literature from psychology that identifies weaknesses in informal reasoning and which suggests possible remedies for these weaknesses. Section 4 describes some criteria that have been developed by two teacher development groups, one working in Geography and a second in Business Studies. Section 5 illustrates how these criteria have been used in teaching and illustrates some of the outcomes through extracts from students' work. Part 6 presents some conclusions.

2. Formal schooling and the aim of improving the quality of students' argument

One of the key aims of formal schooling is to improve the quality of students' arguments. This aim is reflected in the descriptions of levels of performance necessary for the award of particular grades in public examinations in England. For example, the ability to evaluate evidence is referred to in the criteria for the award of GCSE examination grades in Business Studies and Geography. GCSE grades for Geography are also to be awarded on the basis of how well students are able to 'understand the effects of values and attitudes of those involved in geographical issues and in decision-making about the use and management of environments'. The criteria for being awarded a Grade C in GCSE Business Studies require candidates to 'make reasoned judgements and present conclusions that are supported by evidence'. This ability is focused on one assessment objective which guides the design of assessment tasks. At A level, students in business studies to 'evaluate, distinguish between fact and opinion, and assess information from a variety of sources'.

The ability to develop and evaluate arguments is particularly important to the development of a capacity for citizenship. This is central to the 'maximalist' view of citizenship (McLaughlin 1992, Buck and Inman 1995; Davies 2006) which emphasizes the capacity of citizens to play a critical role in the ongoing development of a state. It is implied by the criteria for the award of examination grades at GCSE in England. The criteria for being awarded a grade A in Citizenship require that students 'discuss, interpret and evaluate a variety of different responses demonstrating an appreciation of other points of view. They recognise the complexity of issues studied, weigh up opinions and make judgements supported by a range of evidence and well-developed arguments'. The National Curriculum for Citizenship in England states that teaching of 14-16 year olds should have 'a growing emphasis on critical awareness and evaluation' (QCA 1999). One of the stated goals for education in Australia is

equip students with 'the capacity to exercise judgement and responsibility in matters of morality, ethics and social justice, and the capacity to make sense of their world, to think about how things got to be the way they are, to make rational and informed decisions about their own lives, and to accept responsibility for their own action (MCEETYA, 1999)'. Despite a tendency for national policy statements on education to emphasise 'responsibility' and 'knowing one's role', the importance of developing an ability to devise and evaluate reasoned arguments retains a central place in accounts of the objectives of citizenship education.

These aspirations may fall at the first hurdle if the summative assessment tasks set for students do not require them to demonstrate the quality of their arguments. In the case of Citizenship in England the assessment objectives for GCSE examinations suggest a very limited role for 'evaluation'. It is restricted to the requirement that students should 'plan and evaluate citizenship activities in which they have participated'. Moreover, less than half the marks for questions targeted at this assessment objective in one specimen paper (Edexcel 2001) were awarded for evaluation *per se*. Other marks are awarded for description and understanding of roles.

Specification aims to promote evaluation are more clearly translated into assessment objectives in the more established subjects of Geography, and Business Studies. This in turn is reflected in the kind of questions posed in summative assessments. A typical question focused on evaluation in Business Studies at GCSE is 'Discuss whether you believe that Cadbury Schweppes should encourage its employees to develop skills that are not directly related to their jobs' (GCSE Higher Tier, Question 5b AQA Specification Business A, AQA, 2003). The mark scheme for the question specifies three levels. At Level 0 judgement is 'not based on analysis' and no marks are awarded. At Level 1 'some judgement is offered based on analysis' and 1-2 marks may be awarded. At Level 2 'Good judgement is offered based on balanced analysis'. The use of qualifiers such as *some* judgement and *good* judgement offers rather limited guidance on quality to teachers and students. However, the distinction between judgement that is balanced and judgement that is unbalanced gives a stronger indication of what is required.

This degree of guidance seems insufficient to enable students to demonstrate the quality of argument that is expected by the criteria for the award of grades. In a review of the award of marks in examinations for Business Studies Forrester (2004) found that students were much less successful at gaining marks on 'evaluation' tasks than on questions set against other assessment objectives. In effect, students achieving a grade C overall were not demonstrating the level of ability in evaluation that was suggested by the grade criteria. Staging posts towards higher qualities of argument



in the subject developed to support assessment for learning could also help examiners to draw up mark schemes that more clearly communicate the characteristics of quality to teachers and students.

3. Developing a model of variation in the quality of argument

This section reviews evidence of variation in the quality of argument drawn from two bodies of literature. First, psychologists have analysed differences between 'informal' or everyday arguments and formal or academic arguments. Second, sociologists and language specialists have explored the role of ideology, dialogue and genre in argument. This section brings together some insights from these two traditions.

The arguments that individuals use in their informal 'everyday' reasoning tend to rely on 'plausibility' rather than logic and weight of evidence (Baron, 1988). To some extent we may view this as an efficient use of personal thinking time in so far, for example, as relying on the opinion of an 'expert' removes the need to gather evidence and construct arguments oneself. However, the weaknesses in informal arguments are detrimental to participatory citizenship as well as to formal academic achievement.

Informal arguments have been found to suffer from two main problems. The first is 'confirmatory bias'. This problem is suggested by experimental and survey evidence. Wason (1966) devised a selection task in which participants have to decide which of four cards (E, K, 4, 7) they should pick up to test the truth of a proposition 'a card with a vowel on one side has an even number on the other side'. Individuals are more likely to select cards E and 4 when logic suggests they should choose E and 7. That is, they choose those cards which will they think might confirm the statement rather than those that might refute it. Perkins and colleagues (for example, Perkins Faraday and Bushey 1991) conducted a series of experiments in which they asked individuals to make a judgement and then to rate their confidence in their judgement and their interest in the issue. Their answers suffered from 'my side' bias in that they offered far more statements in support of their viewpoint than statements that contested their viewpoint. This suggests a way of conceiving argument as 'trying to win'. As Andrews (1997, p. 265) observes, 'Everyday arguments are almost always adversarial'. This pattern does not seem to be affected by an individual's level of formal education. In addition, Davies *et al.* (2002) report survey evidence on the economic thinking of 14-18 year-olds suggesting that young people tend to imagine that the government policy (more or less taxation, progressiveness of taxation, level of government spending) is broadly in line with their own preferences. Confirmatory bias acts not only in relation to the process of reasoning

but also in the way that individuals perceive the world about which they construct arguments.

A second problem in individuals' informal reasoning is a tendency for incomplete 'situation modelling'. That is, the way in which individuals construct a model of the situation they are judging tends to suffer from incomplete processes. Critically, they do not tend to pay much attention to developing alternative possible outcomes from the same premises or alternative premises for the same outcome (Kuhn 1991). Higher levels of knowledge about the situation and higher levels of measured IQ appear to have relatively little impact on this modeling weakness (Kuhn 1991, Perkins Faraday and Bushey 1991).

Stein and Miller (1991) suggest a three stage framework for the development of argumentative skill which we now relate to these two problems. They suggest that the ability to argue begins with the use of oral tactics (which largely consist of threats) to gain one's own way. This immediately casts arguments as leading to 'I win – you lose' outcomes. They suggest that a second stage of argument emerges when an individual supports their own viewpoint with reasoning and evidence and begins to move beyond 'confirmatory bias' by seeking to undermine the strength of evidence and reasoning of opposing viewpoints. To do this the student must construct the 'other person' with whom they are entering into dialogue, anticipating possible counterarguments (Andrews 1993, Mitchell 2001).

In a third stage of Stein and Miller's framework arguments appeal to accepted social norms of behaviour and reasoning in order to justify a position. The quality of arguments can be judged in terms of the degree to which they follow accepted ground rules (Sheeran and Barnes 1991, Mitchell and Mason 2001) within a relevant community. For example, Simon *et al.* (2006) develop a general approach for evaluating the quality of arguments used by students in science classrooms. However, different academic communities have distinctive ground rules for arguments arising from the accepted ideology or 'way of thinking' in that subject and the accepted genres (such as essays, reports etc.) through which arguments are expressed (Mitchell 2001). The adequacy of a 'situational model' is judged by the extent to which the argument recognises the way of thinking accepted within a subject.

This analysis provides a basis for strategies to improve the quality of students' arguments. First, there are strategies to guide the process of students' formation of arguments. For example, Baron (1988) proposes that students are encouraged to look for evidence against the first idea they think of and to consider alternative possibilities. That is, they should be encouraged to adopt processes that counteract the instinctive confirmatory bias. They might also be encouraged to make explicit the audience to which they are presenting their argument and to describe the cri-

teria that are important to this audience. This leads to a second strategy. Teachers could model types of argument that students should aspire to. "According to Baron, successful teaching must also provide standards by which particular examples of thinking can be judged, beliefs about what good thinking is and why it is important and, as we have already said – the motivation to think as well." (Garnham and Oakhill 1994, 276). According to Kuhn (1991) the effectiveness of these strategies will depend on the degree to which learners' are encouraged to reflect on the process of their argument construction and the structural quality of the arguments they present. Felton (2004) provides evidence to support the value of guiding students' reflection on the structure of the arguments they have employed. However, this evidence relates to oral arguments in which the structure of arguments is developed through the interplay of statements made by participants in the argument. The development work reported here focuses on students' written arguments in the context of school subjects.

4. Developing the quality of students' arguments through assessment for Learning

During 2002-2004 two groups of teachers developed approaches to the development of students' arguments that fall into the category of 'modelling qualities of argument'. These groups were established following open invitations to teachers in two local authority areas. Decisions on inclusion in a development group were made on the basis of curriculum opportunities and management support that would be available in each school. One group consisted of seven Geography teachers funded through the DfES Best Practice Research scheme and the other group consisted of six teachers of Business Studies funded by the Nuffield Foundation. Each teacher came from a different secondary school.

Each of the two projects followed a similar format using a strategy for assessment for learning (Black and Wiliam 1998). Each teacher development group initially focused on the way Davies et al. (2004) developed and used statements distinguishing between levels of quality in students' descriptions and explanations in Geography. This approach is broadly based on the tenets of phenomenography, whereby qualitatively different conceptions of a phenomenon are identified through analysis of individuals' oral or written accounts. In the initial phase of work each group identified dilemmas that might be posed to students. These dilemmas were designed to expose the nature of students' arguments when responding to issues that fell within the routine demands of the subject specifications for public examinations. For example, one of the dilemmas designed for business students asked them to evaluate the merits of two alternative methods of insulin production in the light of some information about production costs and implications for diabetes sufferers.

Variation in the quality of students' arguments was categorised on the basis of analysis of examples of students' work arising from these dilemmas. That is, the qualitative differences between students' arguments were identified through an inductive process using examples of students' work in the context of their studies. Members of each group scrutinised the examples of students' writing, discussed the key qualitative distinctions between them and agreed upon ways of describing the different levels of quality that were found. This process resulted in the distinctions that are presented here in Tables 1 and 2. The language in these tables has been chosen to make them usable by students. The full representations of the tables can be found in Davies and Durbin (2004) and Davies (2004). In both cases the teachers agreed that there were several aspects to the differences in quality.

Table 1 Criteria for improving arguments in Business Studies

	Stakeholders	Reasons	Interdependence
1	Only presents view of one stakeholder	There is a point of view, but no argument to back it up	Costs or benefits are not connected (like a list)
2	Presents the views of more than one stakeholder	Gives only one reason to support a point of view	The balance between costs and benefits is considered (weighing up)
3	Suggests how the interests of different stakeholders can be brought together	The argument has more than one reason but the reasons contradict each other (don't add up)	The effects of everyone's behaviour on the future balance of costs and benefits is considered (knock-on effects)
4	Considers the advantages and disadvantages of any one way of getting stakeholders to work for the same outcome	The argument has more than one reason but the reasons do not support each other (like a list)	



Table 2 Criteria for improving arguments in Geography

	Reasons	Interests	Viewpoints	Evidence
1	I give my own opinion with a reason for that view	My judgement assumes that everyone will benefit in the same way.	My judgement refers to a wider viewpoint	My judgement includes a relevant piece of evidence
2	I make a judgement and back it up with more than one reason	My judgement recognises that people want different things or will be affected in different ways	My judgement recognises that there may be more than one wider viewpoint on a problem	My judgement includes more than one piece of evidence
3	I can see problems in a reason, because it does not work out the same in all cases.	My judgement assumes that what some people want will be the opposite of what others want. If some people are better off others are bound to be worse off.	My judgement shows how a criterion is linked to a wider viewpoint.	My judgement includes pieces of evidence that do not all support the same argument
4	I can describe how the reasons used in a judgement are related to each other	My judgement recognises that what different groups of people want may sometimes be in conflict but sometimes can be achieved together	My judgement makes clear how different interests are valued by a wider viewpoint	My judgement recognises weaknesses in the evidence
5		My judgement recognises when and how what different groups of people want may sometimes be in conflict but sometimes can be achieved together		My judgement weighs up the strength of the evidence.

Tables 1 and 2 each include a criterion for 'reasons' in evaluating the quality of students' arguments. Although the language in the two columns is different the suggestion in both is that quality increases as students support their assertions with the number and cohesion of reasons. Interestingly, the Geography criteria include a reference to the identification of problems with the reasons that are put forward. This implements the proposal from Baron (1988) noted earlier. The Geography criteria also include a separate column for use of evidence and here again (at levels 3 and 4) there are references to recognition of problems with the evidence. These differences between the criteria developed by the two groups of teachers do not appear to have been precipitated by the national subject criteria referred to earlier. It may reflect differences peculiar to these teachers.

However, a further difference between the two tables does seem to be related to the subject criteria. Whilst Table 1 (used in the Business Studies lessons) includes one criterion referring to stakeholders, Table 2 (Geography) refers to interests and viewpoints. Spec-

ifications for examinations in Business Studies refer frequently to stakeholders whilst specifications for Geography refer to the identification of the values that underpin different viewpoints. This may contribute to the way in which the Geography group differentiated between interests and viewpoints whilst the Business group did not. Thus, although the differences between the two sets of criteria may reflect no more than the differences between these two groups of teachers, it is consistent with the view that there are subject differences in what counts as a good argument.

Having developed descriptive categories for levels of quality in students' work the teachers in the projects investigated ways of helping students to understand the general criteria, assess their own work using these categories and aim to improve the quality of their writing so as to demonstrate the higher levels of argument. The broad approach developed for use across the subject areas in the project is shown in Table 3. The three stages in the approach are based on Tharp and Gallimore's (1989) account of the scaffolding process suggested by Vygotsky's Zone of Proximal Development.



Table 3 Developing Students' Understanding of Qualities of Arguments

STAGE 1 Introducing the statements to the students

- 1 Provide students with 4 examples of different levels of argument using past students' work or made up examples. Make these examples relevant to ONE of the free parts of the framework. Make these examples specific to the topic they have just studied or just about to study. Ask the students to assess these examples. First ask them to identify the best and worst. Then ask them to put the 4 examples in order from best to worst. Discuss in class.
- 2 Introduce that part of the framework you want the students to focus upon. Show how this is related to the examples they have just assessed.
- 3 Ask students to assess their own work. This could be their previous, most recent piece of work, or a piece of work they do after you have introduced the framework. Help them to focus on individual sentences rather than leaping to an overall verdict. Discuss examples in whole class.
- 4 Ask the students to set a target for the level of argument they want to reach in their next piece of work.

STAGE 2 Supporting the students' use of the framework as they work on tasks and assess the outcomes

- 5 Provide students with support for their next task by showing examples of levels in relation to this task.
- 6 Ask the students to carry out the task aiming to improve the quality of their arguments.
- 7 Ask students to assess their work, mark their neighbour's work, compare and discuss grades. Follow with class discussion.
- 8 Ask students to set a target for their next piece of work

STAGE 3 Reducing the level of support for students' use of the framework

- 9 Provide students with less support for their next task compared with (5). For example do **not** use examples of levels in relation to this task.
- 10 Ask the students to carry out the task aiming to improve the quality of their arguments. (*as 6*)
- 11 Ask students to assess their work, mark their neighbour's work, compare and discuss grades. Follow with class discussion. (*as 7*)
- 12 Ask students to set a target for their next piece of work (*as 8*)

In the first stage students are assisted to perform beyond their independent capacity by teacher direction. Students cannot understand the level of quality to aim for without the teacher's assistance, most likely through modelling that level of quality in terms of the context of the topic that the student is currently learning. One challenge for assessment for learning is to make quality criteria intelligible and realistically achievable for students (Black and Wiliam 1998, 54). At the same time it is important to leave criteria open to debate so that there is room for students to question how statements such as those in Tables 1 and 2 should be interpreted. This kind of activity is promoted, for example, in rows 3, 7 and 11 of the procedure described in Table 3. In the terms proposed by Alexander (2001) there must be creative space for 'Dialogic Teaching'. This combination of teacher directed activ-

ity and discussion between students broadly follows the recommendations of Mercer et al. (2004).

The approach adopted in Table 3 is to introduce the different levels of quality through examples which students are asked to evaluate. It is through the processes of assessing examples of work from others and themselves that students learn to use these descriptions of quality in aiming to improve their own work.

In the second stage students take over responsibility for directing and assisting their learning. A key indicator of that a student has progressed to Tharp and Gallimore's second stage is their ability to take responsibility for their learning by applying ideas appropriately in a range of contexts. Assessment for learning might record this growing adaptability in terms of a student's familiarity level (modest and uneven performance on tasks) or an expertise level (consistently high performance on tasks) Ruthven (1995).

In the third stage students' performance should be thoroughly internalised and more or less automatic so the need for examples is removed.

5. Exemplification

In implementing this approach to improving students' arguments teachers began with leading questions that they believed captured an issue that would interest students' interest such as (A) 'Should information that a woman is planning to have a baby be allowed to influence a decision on her application for a higher graded job?', (B) 'Should this company agree to a 30% increase in pay for its directors?' and (C) 'Should the Government ban advertising of sweets on television?' This section refers to extracts from three lessons that aimed to help students to consider each of these questions. The letters (A)-(C) are used to indicate which lesson is being referred to. Each of these lessons focused on column 1 of Table 1: arguments concerning the interests and views of stakeholders. Evidence was collected during each lesson through observations of students' work gathered by a member of the development group. Through these observations we hoped to establish a picture of how *some* of the students were engaging with the process. The interpretations of this evidence were developed through subsequent review meetings.

Initial qualities of argument

Before using the approach it is helpful to gather some data on students' initial qualities of argument and to help them to begin to think about the way their arguments are constructed. The teacher in Lesson (A) asked the students to 'think of as many arguments as you can why the person should be invited for interview and why the person should not be invited for interview'. Some students responded to this task by writing their answers in continuous prose whilst others put two columns, one for 'yes' and one for 'no'. One boy wrote 'Karen should get an interview because she got an A* in Business and Economics' and went on to list all of Karen's achievement. The person specification only referred to qualification at degree level in a relevant subject so these earlier achievements are not strictly relevant. One girl wrote 'they should invite Karen to interview because she is well qualified (no specific reference to the degree)... but if they want someone to work for a long time they should not consider Karen as she is planning to have a baby'.

One interpretation of these two examples we can see that the boy is displaying the 'confirmatory bias' referred to earlier, whilst the girl also presents an argument against her preferred option. It was quite striking to find this opinion (that 'planning to have a baby' should be taken into account in some circumstances) was aired by a significant number of the girls, but rare-

ly by the boys. It suggested a line of thinking to be challenged during the lesson. Conversation between the teacher and the boy suggested that the boy's response 'offer interview because of A*' reflected a focus purely on the interest of the applicant (the GCSE grade was not referred to in the person specification). This places the boy's argument at level 1. The girl does consider the interests of the applicant (in terms of being well qualified) and the employer ('is she a long term investment') notwithstanding the question of whether the employer should be permitted to let this influence the decision. The first key step in the approach is to help students to recognise these distinctions in qualities of argument.

Helping students to recognise different qualities in arguments

Table 3 Stage 1 presents some strategies for introducing students to criteria for different qualities of argument. In Lesson (A) the teacher adopted the strategy depicted in Table 3 Row 3. She introduced the 'qualities of arguments' sheet (Table 1) and reminded the class that they had looked at this sheet in the previous week. She asked the students to use the sheet to assess their initial arguments (referred to above). The version of Table 1 she gave out focused only on Column 1 and it exemplified each level through arguments about recycling (Davies, 2004). The students had to try to apply the general points to a situation that was quite different from that imagined on the sheet. One boy awarded himself a level 2 on the basis that he had 'arguments for and against'. His reason against was that 'it would be unfair to other candidates because she is an internal candidate'. He had identified other stakeholders (candidates from outside the company) so in that sense he was sensibly applying the criteria in Table 1 Column 1. However, the teacher probed his use of the word 'unfair'. The information given to the students suggested there was a risk that the asymmetric information (on internal as opposed to external candidates) might be used to unfairly disadvantage the internal candidate.

The teacher then asked the students to swap their work with person next to them who would also assess their work. Some of the girls seemed more generous in marking their partners' work than in marking their own, but in general they tended to agree with each other. For example, two girls had each given their partner a grade '4', but had only awarded a '2' to themselves. Their self-assessment was more accurate than their assessment of each other and the teacher concentrated on the difference between answers at levels 2 and 3. The difference required for a level 3 was a suggestion of how the conflicting interests could be resolved. The teacher drew the students' attention to this difference. This led to a conversation in which the



girls suggested making the job part-time as a possible resolution.

In Lesson (B) the teacher concentrated on the strategy depicted in Table 3 Row 1. Students were given the

exemplar arguments presented in Table 4 and asked to work in pairs to decide which of the four arguments was best.

Table 4 Alternative arguments about an increase in director's pay

<p style="text-align: center;">A</p> <p>Paying all workers partly through shares might make them feel better when directors benefit from share ownership. So this could be a way of keeping directors and workers happy at the same time. But directors will benefit more because they get more pay which they can vote for themselves and it is bad for the country if directors get paid huge amounts when the business is not doing well.</p>	<p style="text-align: center;">B</p> <p>Stopping directors getting big pay rises might mean they leave the company which could be bad for business. But if they do get a big pay rise all the other workers might protest if they get much less. If all the workers got paid partly through shares they could have a share of the profits too.</p>
<p style="text-align: center;">C</p> <p>It would be unfair to pay the directors 50% more because the workers are getting only a small pay increase and they work just as hard. When the business does well it is just as much due to the workers as the directors. Workers have a right to high pay increases any time that a director gets a high pay increase.</p>	<p style="text-align: center;">D</p> <p>The shareholders might want to pay the directors an extra 50% because profits have risen and they want the directors to stay with the company and not be tempted to go to a better paid job in another company. But the workers might be unhappy because they are not getting such a big rise.</p>

The four arguments in Table 4 were written to focus on the 'stakeholders' column in Table 1. Argument A corresponds to Level 4 because it suggests recognition of how the interests of stakeholders could be brought together yet goes on to point out problems with the solution. Argument B corresponds to level 3 in Table 1 because a possible resolution (giving all workers a shareholding) is suggested. Argument C corresponds to Level 1 because only the viewpoints of workers are presented. Argument D corresponds to Level 2 because the views of different stakeholders are considered.

Strategies to help students to focus on improving their arguments from one level to the next

To some extent the careful framing of the initial question appeared to stimulate students' thinking such that they began to work towards the higher levels of reasoning. For example, in the initial stages of lesson (C) (on whether advertising of sweets on television should be banned) one student asked about 'health warnings' on chocolates. She asked 'Why do Cadbury's put these warnings on if they want people to buy as much chocolate as possible?' The same student later asked 'Do you think that the health warning adverts work?'

However, the main strategy adopted in this lesson was to focus on trying to help students to improve

their arguments from levels 2 to 3 in Column 1. To that end the teacher led a class discussion to generate some possible ways in which the interests of the company and the general welfare of the population might be met. Once a list of possibilities had been developed he asked students to decide on their preferred option and to present their review of the arguments. Two students chose 'research into low sugar chocolates' as a good option because 'it has long-run benefits for the company in protecting market share'. This argument leaves the interests of consumers implicit. We might assume that it is in consumers' interests to have healthier sweets, but they might also prefer the taste of sugar-rich sweets. That is, we can see again the tendency only to state arguments in support of a contention even when conflicting interests are being considered. However, we can begin to see a better 'situational model' emerging in the students' reference to the company's long-run interests.

There also appeared to be a difference in the quality of situational modelling in a comparison of two students' arguments about the merits of resolving stakeholder interests on sweets by a rise in VAT. One student preferred government health warnings to an increase in VAT because 'people would not want to pay more' (she did not consider the cost of advertising and therefore did not consider the real cost in terms of resources). Another student preferred a strategy of putting VAT on sweets on the basis that

'higher prices would reduce demand and firms would lose money so they would want to change to produce more healthy stuff'. The second student appears to advance a more complex line of reasoning (Column 2 in Table 1) in support of their viewpoint.

6. Discussion

This section addresses three questions: Are the staging posts (Tables 1 and 2) developed by these teachers consistent with the model of quality in arguments presented in Section Three? Is there variation between the subjects? Could Tables 1 and 2 be useful in summative assessment?

The distinction between Stages One and Two in Stein and Miller's (1991) model focuses on developing a conception of argument as dialogue with another who may see things differently (moving on from confirmatory bias). This is represented in Table 1 by the column headed 'Stakeholders' and in Table 2 by the columns headed 'Interests' and 'Viewpoints'. In each Table the movement from rows 1 to 2 is characterised by recognition of alternative interests or viewpoints. However, subsequent rows (e.g. row 4 in the Stakeholders column of Table 1) suggest greater levels of sophistication within 'balanced argument' as represented by the dialogue conception. That is, teachers felt able to identify more fine grained differences that they subsequently found useful in supporting students' learning.

The other columns ('Reasons' and 'Interdependence' in Table 1 and 'Reasons' and 'Evidence' in Table 2) broadly correspond to the move from Stage 2 to Stage 3 in Stein and Miller's model (developing a better situational model). The 'Reasons' columns in the Tables are broadly similar to each other and also to the distinctions proposed by the SOLO Taxonomy (Biggs and Collis, 1991)¹. Together with the evidence column in Table 2 they provide one articulation of the general qualities expected of academic argument and they may be seen as an interpretation of what it means for secondary school students to move from Stage 2 to Stage 3 of Stein and Glenn's model. As with the other columns the 'Reasons' and 'Evidence' columns provide a more fine grained distinction. This makes it more practicable for teachers and students to identify an achievable next step that each learner can attempt.

This comparison between the model presented in Section 3 and the ones presented in Tables 1 and 2 prompts the question of whether it is more appropriate to regard the Stages in Stein and Glen's model as

sequential or parallel. Is the development of a conception of argument as dialogue a necessary precursor to the development of a conception of argument as following accepted forms of reasoning in a community? In so far as the latter entails an appreciation of underlying ideology and a realisation that one is using 'a form of reasoning accepted by a community' this may well be so. But for most secondary school students at least up to the age of 16 this degree of self awareness may be beyond their scope. Nevertheless they can begin to use forms of argument that might be judged as 'better' if using some explicit criteria as reference points.

In answer to the second question it looks as if the secondary school subjects included in this study (Business and Geography) encourage the development of aspects of generalised academic argument with different degrees of emphasis. The attention to evidence was important to this group of Geography teachers but not to the teachers of Business. In addition, the teachers of Business seemed to be more concerned that students developed arguments that reflected a particular way of thinking in their subject (the 'Interdependence' column in Table 1). The Geography teachers also distinguished between viewpoints and interests in a way that was missing from the work of the Business teachers. So it appears that there is variation between these secondary school subjects that can still be regarded as rooted in a general model of the qualities of academic argument.

Tables 1 and 2 have some potential for informing summative assessment. The column headings might be useful in the design of assessment objectives and grade criteria. Interestingly, the criterion for the award of Grade C in Business Studies cited earlier refers to the ability of candidates to 'make reasoned judgements and present conclusions that are supported *by evidence*' yet neither Table 1 nor the mark scheme cited in Section 2 refer to evidence. Table 1 suggests that the criterion for the Award of a Grade C in Business Studies might helpfully refer to appreciation of the interests of different stakeholders, the reasons offered and the appreciation in the argument of a degree of interdependence within the economy and between businesses. The rows in the two Tables could also inform the writing of mark schemes so that they offer more guidance to teachers and students than general references to 'some judgement' and 'good judgement' (as cited in Section 2).

7. Conclusion

Literature from different disciplinary bases supports a view that higher qualities of argument are characterised by conceptions of argument as 'dialogue' (not suffering from confirmatory bias) and 'playing by the ground rules of a community' (the whole academic community or a disciplinary community). This paper

1 Biggs and Collis developed a taxonomy of 'Observed Learning Outcomes' which has been widely used in differentiating between higher and lower qualities of learning outcome. Working within a 'Neo-Piagetian' framework they suggested that explanations can be graded according to the complexity of their structure: taking account of one factor, multiple factors, showing relationships between multiple factors etc.



has described an approach to improving the quality of students' arguments within secondary school subjects that is underpinned by this analysis of quality in arguments. The strategies to support students' learning provide more fine grained staging posts that teachers and students can use to guide their efforts to produce better arguments. As such this is an example of 'assessment for learning' (Black and Wiliam 1998) to lead to improvements in levels of attainment. The approach to assessment for learning described here aims to fill the gap between the insights developed by theorists and the strategies that teachers feel equipped to use in the classroom.

The specific tools (Tables 1 and 2) that have been developed for this purpose are very provisional. Whilst they have been developed through comparative analysis of students' writing they are at best useful starting points for this kind of work. Subsequent analysis will doubtless reveal ways in which they could be made more fit for purpose. There is plenty of scope for fur-

ther analysis of the validity and stability of the distinctions suggested in the Tables and extent to which achievements described in one column should be regarded as similar in level to achievements described in another. Nevertheless, the openness of these tools to debate – as to what they mean and whether the way they try to distinguish between different qualities of argument – is central to their usefulness. The effectiveness of these tools in supporting learning rests on their capacity to provoke rather than suppress debate about quality.

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